COVERAGE NAME : HBASA

COVERAGE AREA: STATEWIDE, COUNTY

COVERAGE DESCRIPTION

The coverage HBASA was prepared by the California Department of Fish and Game (DFG) as a task within an interagency agreement for geographic information system (GIS) support to the California State Water Resources Control Board (SWRCB) Non-Point Source (NPS) Unit. HBASA is a statewide version of the Teale GIS Technology Center (Teale) County Library data layer for hydrologic basins, called HBASA. DFG performed various corrections to the original data, such as basin coding, sliver polygon removal, and digitizing of missing boundaries. The intended use of HBASA is as an interim reference in digital form, accurately (but not precisely) corresponding to SWRCB-delineated basins, and as a cross-reference to Department of Water Resources (DWR) basin codes as presented in the Areal Designation map of February 10, 1981 and in "Hydrologic Data", Bulletin 130-85 (DWR, May 1988).

See the related database swrcbhc.dbf, which contains all Regional Water Quality Control Board (RWQCB) surface hydrologic basin names and codes as published by the SWRCB on the Hydrologic Basin Planning Area (HBPA) map series (1:500,000-scale; SWRCB, 1973, as revised). Metadata on this database is contained in the file swrcbhc.txt.

See also metadata (documentation) file calwater.txt for a description of the California Department of Forestry and Fire Protection (CDF) Planning Watersheds (CALWATER), which are further subdivisions of the SWRCB basin delineations. See also California Teale GIS Technology Center (Teale) ARC/INFO coverages and metadata (hbasa.txt) and DFG refinements of federal hydrologic unit codes (USGS HUCs, 1978) (hucdfg1.txt). CALWATER, USGS, and SWRCB surface hydrologic basin delineations are being reviewed by the California Interagency Hydrologic Basin Map Committee, chaired by the California Department of Water Resources. Basin names, codes, and boundary delineation reviews are expected to be completed within fiscal year 95/96. This coverage and the 1:500,000-scale SWRCB maps and the Teale GIS library "HBASA" coverages will be superceded by the CALWATER system, digitized on a 1:24,000-scale base (USGS 7.5'-series quadrangles), as modified by DWR and Teale.

VITAL STATISTICS

Datum:	NAD 83
Projection:	Albers
Units:	Meters
1st Std. Parallel:	34 00 00 (34.0 degrees N)
2nd Std. Parallel:	40 30 00 (40.5 degrees N)
Longitude of Origin:	-120 00 00 (120.0 degrees W)
Latitude of Origin:	00 00 00 (0.0 degrees)
False Easting (X shift):	0
False Northing (Y shift):	-4,000,000
Source:	Teale GIS Technology Center "HBASA"
Source Media:	ARC/INFO coverages, tiled by county
Source Projection:	as above
Source Units:	as above
Source Scale:	1:500,000
Capture Method:	manual digitizing
Conversion Software:	ARC/INFO rev. 7.0.3
Data Structure:	Vector
ARC/INFO Coverage Type:	Polygon
ARC/INFO Precision:	Single
ARC/INFO Tolerances:	N/A
Number of Features:	1004
Layer Size:	appx. 3.3 megabytes (uncompressed export)
Data Updated:	under development (November 1995)

DATA DICTIONARY

Structure of table HBASA.PAT

(standard ARC/INFO fields AREA, PERIMETER, HBASA#, and HBASA-ID are not described here)

COL	ITEM NAME	WIDTH	TYPE	N.DEC	DESCRIPTION
17	BASIN	5	I	-	integer form of SWRCB code (w/o decimal)
22	NHCODE	6	N	2	numeric representation of SWRCB HSA code
28	ADCODE	6	C	-	DWR Areal Designation code (Bulletin 130-85)
34	CHBPA	2	C	-	Hydrologic Basin Planning Area code
36	CHUNAME	50	C	-	SWRCB Hydrologic Unit (HU) name
86	CHANAME	50	C	-	SWRCB Hydrologic Area (HA) name
136	CHSANAME	50	C	-	SWRCB Hydrologic Sub-Area (HSA) name
186	CHUCODE	6	C	-	SWRCB HU code as character string
192	CHACODE	6	C	-	SWRCB HA code as character string
198	CHSACODE	6	C	-	SWRCB HSA code as character string
204	R	1	I	-	integer code for SWRCB Hydrologic Region
205	RU	3	I	-	integer combining Region and HU codes
208	RUA	4	I	-	combines Region, HU, and HA
212	RUAS	5	I	-	combines Region, HU, HA, and HSA (same as BASIN, as present in original Teale "HBASA" coverage)

SWRCB HYDROLOGIC BASIN CODES

SWRCB Hydrologic codes are 6-byte strings composed of numbers and a decimal point. The meanings associated with each byte position and the decoding of a typical code are shown below. Allowable value ranges shown in parentheses.

The first byte (first position in the code string) indicates the Hydrologic Region (there are 9 statewide). Other byte positions are described below. A code ending in .00 indicates an entire major river basin, called a Hydrologic Unit (HU) (e.g. 105.00 - KLAMATH RIVER HYDROLOGIC UNIT). Large tributaries of major rivers are designated as Hydrologic Areas (HA), and their codes end in a single zero. In turn, HAs are subdivided into Hydrologic Sub-Areas (HSA), and a single digit replaces the last zero in the HA code. HSA codes ending in zero or double zeroes indicates that that the HA or HU is not subdivided (see further explanations under CHSANAME below).

Byte(s)	Meaning	Value	Range
1	Hydrologic Region	(R)	(1 <= R <= 9)
2,3	HYDROLOGIC UNIT	(HU)	(00<= HU <=59);(=81)*
4	always a decimal point		(.)
5	Hydrologic Area	(HA)	(0 <= HA <= 9)
6	Hydrologic Sub-Area	(HSA)	(0 <= HSA<= 9)

Example: Scott Bar HSA (105.41)

1 = North Coast
05 = KLAMATH RIVER (1-digit HUs include leading zero)
4 = Scott River Hydrologic Area
1 = Scott Bar

NOTE:
Regions 4 and 8 use county lines to "split" some of their HUs. * See 481.21, 845.15, etc and REMARKS(4). In Region 5, HU values 28, 29, 30, 46 thru 50 inclusive, are skipped.

Normally, HUs and HAs are subdivided into lower categories (HUs are divided into HAs, HAs are divided into HSAs). Some HUs and HAs are not subdivided. Examples:

Name	Code	Name	Code
LUCERNE	LAKE HU	701.00	Blue Lake HA 109.10
JOHNSON	HU	702.00	Ruth HA 109.40
BESSEMER	HU	703.00	Suisun Bay HA 207.10

Byte position 1 contains the numeric code of the SWRCB Hydrologic Regions:

R Hydrologic Region Name	CHBPA (Hydrologic Basin Planning Area)
1 = North Coast	NC
2 = San Francisco Bay	SF
3 = Central Coast	CC
4 = Los Angeles	LA
5 = Central Valley	SB = Sacramento
5 = Central Valley	SJ = San Joaquin
5 = Central Valley	TL = Tulare Lake
6 = Lahontan	NL = North Lahontan
6 = Lahontan	SL = South Lahontan
7 = Colorado River Basin	CR
8 = Santa Ana	SA
9 = San Diego	SD

Note: The Central Valley and Lahontan Hydrologic Regions are subdivided into Hydrologic Basin Planning Areas (HBPA), each with separate names and maps. All other HBPA names are the same as Hydrologic Region names. The numeric sequence of Hydrologic Unit (HU) codes is continuous across Central Valley HBPAs, except for skipped values 528, 529, 530, and 546 through 550 inclusive. HUs 535 and 545 have the same name (San Joaquin Valley Floor), as do HUs 551, 557, and 558 (South Valley Floor).

DWR AREAL DESIGNATION CODES

Areal Designation codes used in coverage HBASA were copied from a hardcopy DWR map dated February 10, 1981. The map codes were cross-checked with those contained in "Hydrologic Data", DWR Bulletin 130-85 (DWR, May 1988). Other versions of the DWR system may be in use (see DWR Bulletin 230 and other series). Discrepencies between the above two sources are listed in the table below.

DWR uses one letter to designate a "Hydrologic Basin" (HB) in byte position 1 of item ADCODE. These letter codes correspond to the SWRCB Hydrologic Regions (HR) and Hydrologic Basin Planning Areas (HBPA, see table below).

As with the SWRCB system, the DWR Areal Designation codes ending in .00 indicate entire Hydrologic Units (HU) (e.g. W14.00 - CHEMEHUEVIS HYDROLOGIC UNIT), and codes ending in a single zero indicate undivided Hydrologic Areas.

DWR Areal Designation

Byte(s)	Meaning	Value	Range
1	Hydrologic Basin	(HB)	(A <= HB <= Z) see below
2,3	Hydrologic Unit	(HU)	(00<= HU <=??)
4	always a decimal point		(.)
5	Hydrologic Area	(HA)	(0 <= HA <= Z)
6	Hydrologic Sub-Area	(HSA)	(0 <= HSA<= 9)

DWR HB	SWRCB HR	SWRCB HBPA	HR / HBPA Name
F	1	NC	North Coast
E	2	SF	San Francisco Bay
T	3	CC	Central Coast
U	4	LA	Los Angeles
A	5	SB	Central Valley / Sacramento Basin
B	5	SJ	Central Valley / San Joaquin
C	5	TL	Central Valley / Tulare Lake
G	6	NL	Lahontan / North Lahontan
W	6	SL	Lahontan / South Lahontan
X	7	CR	Colorado River Basin
Y	8	SA	Santa Ana
Z	9	SD	San Diego

Examples:

F05.D1 = 105.41 = Scott Bar HSA
A07.B1 = 520.21 = Colusa Trough HSA
B06.B0 = 541.20 = Los Banos HA
C01.T0 = 558.80 = North Kern HA
Z07.D3 = 907.43 = Cuyamaca HSA

Byte positions 2 and 3 of the Areal Designation do not always match in numeric value to the corresponding SWRCB HU codes.

In byte position 5 of the DWR code, the letters A, B, C, etc sometimes correspond with SWRCB HA codes 1, 2, 3, but not always. The table below shows the discrepencies discovered to-date among three sources:

AREA DESIGNATION MAP OF CALIFORNIA (DWR, 2-10-81)	HYDROLOGIC DATA Bulletin 130-85 (DWR, May 1988)	REGIONAL WATER QUALIY CONTROL BOARD (12 maps, SWRCB, 1986)

FO2.A0	F02.A0	102.20
FO2.B0	F02.B0	102.30
F11.B2	F11.B2	111.23
F11.B3	F11.B3	111.22
T09.X0	T09.X0	317.00
T14.E2	--	314.52
T14.E1	T14.E0	314.51
T15.B1	T15.C1	315.31
T15.B2	T15.C2	315.32
T15.B3	T15.C3	315.33
T15.B4	T15.C4	315.34
U05.F1	U05.F1	845.61
U05.F2	U05.F2	845.62
		405.62
U05.F3	U05.F3	845.63
		405.63
Z02.J1	Z02.I1	902.91
Z02.J2	Z02.I2	902.92
Z02.J3	Z02.I3	902.93
Z02.J4	Z02.I4	902.94
Z02.G4	--	902.74
Z06.D0 *		
Z07.A1 *		
Z06.E0 *		
A14.A2	A14.A2	522.11
A14.A1	A14.A1	522.12
A14.B2	A14.B2	522.24
A14.B3	A14.B3	522.22
A14.C2	A14.C2	522.33
A14.C3	A14.C3	522.32
B09.B1	B09.B1	534.22
B09.B2	B09.B2	534.21
B08.K0	B08.K0	545.10
B08.L0	B08.L0	545.20
BO8.M0	B08.M0	545.30
C03.B1	C03.B1	552.35 **
C04.B2	C04.B2	553.45 **
W02.B0	W02.00	602.20
W02.A0	--	602.10
W26.D0	W26.A4	626.40
W26.C0	W26.A3	626.30
W26.A0	W26.A1	626.10
W26.B0	W26.A2	626.20
W26.G0	W26.A7	626.70
W26.H0	W26.A8	626.80
W26.E0	W26.A5	626.50
W26.F0 ***	W26.A6	626.60
W28.J0	W28.I0	628.90

X13.A0	X13.A0	713.40
X13.B0	X13.B0	713.10
X13.D0	--	713.20
X08.A0	X08.A0	708.20
X08.B0	X08.B0	708.10
X17.D0	X17.00	717.40
X15.D0	X15.00	715.40

* Mission Bay, expect resolution of boundary discrepencies by RWQCB.
** Reservoir created another polygon under this code.
*** Polygon doesn't appear on original hbasa coverage from Teale.

Additional metadata on the Areal Designation system may be available from DWR.

SWRCB MAP REVISION HISTORY

CALWATER, USGS, and SWRCB surface hydrologic basin delineations are being reviewed by the California Interagency Hydrologic Basin Map Committee, chaired by the California Department of Water Resources. Basin names, codes, and boundary delineation reviews are expected to be completed within fiscal year 95/96. The 1:500,000-scale SWRCB maps and their digital representations in the Teale GIS library will be superceded by the CALWATER system, which is digitized on a 1:24,000-scale base (USGS 7.5'-series quadrangles).

The 12 SWRCB HBPA maps whose legend indexes of hydrologic names were used to compile the coverage HBASA and the database swrcbhc.dbf also contain revision information. This information is reproduced here for reference.

This portion of the revision history is the same on each of the 12 maps: ("Standard Revisions" hereafter)

April 1973
Revised: July 1976
Revised: August 1986
State Water Resources Control Board
Surveillance and Monitoring Section
T.E. Lavenda, P.E. (signature)

Beyond the above annotation, individual map sheets differ in their content of additional revisions and notes. Text sections beginning with "REMARKS(n):" are comments by metadata author by Region, not part of the map contents.

North Coast Region (1)

The North Coast HBPA map available at this writing contained an additional revision entry and notes:

Revised: July 1991
California Regional Water Quality Control Board
North Coast Region
Surveillance, Monitoring, and Planning
Don F. Hoirup, Jr. (no signature)

NOTE:

1. The names and areas shown on this map are the same as used by the Department of Water Resources (DWR) in their Bulletin 94 Series.

2. The 1980 updated names and areas shown on this map are in accordance with an agreement with DWR and U.S. Geological Survey.

3. Boundaries have been modified in areas 5.81, 5.82, 5.83; 7.10, 7.20; 11.21, 11.22, 11.23; 11.31, 11.32; 11.41, 11.42. These modifications are adjustments in boundary locations from map revision August 1986.

REMARKS(1): The North Coast revisions do not result in code changes. The full Hydrologic Area (HA) and Hydrologic Sub-Area (HSA) codes involved are listed below by HYDROLOGIC UNIT for consistency with HBASA.pat and with swrcbhc.dbf:

KLAMATH RIVER	REDWOOD CREEK	EEL RIVER
105.81	107.10	111.21
105.82	107.20	111.22
105.83	111.23	
		111.31
		111.32
		111.41
		111.42

As of July 20, 1995 the above boundary changes have not yet been included in the coverage HBASA, nor in Teale's HBASA data layer, nor in CDF's CALWATER digital coverage of SWRCB boundaries. Expect additional boundary modifications in other SWRCB Hydrologic Regions. Note 2 may be referring to August 1986 revision, not 1980; or to a 1978 Interagency Agreement on basin names. Boundaries of DWR Bulletins 94-, 130-, and 230-series maps and those of the SWRCB do not always agree.

San Francisco Bay Hydrologic Region (2)

Standard Revisions; no additional Notes.

Central Coast Region (3)

Standard Revisions; no additional Notes.

Los Angeles Region (4)

Standard Revisions; additional Notes:

NOTE:

1. The names and areas shown on this map are the same as used by the Department of Water Resources (DWR) in their Bulletin 130 Series except as noted below.

2. The numbering system used on this map is an adaptation of the numbering system used in the 130 Series.

3. The boundary between Region 8 and Region 4 follows the boundary between Los Angeles County and Orange or San Bernardino Counties, not the Hydrologic Boundary. The San Bernardino County line splits Hydrologic Unit 1 (Santa Ana River HU) so that Sub-Areas 481.21, 481.22, and 481.23 are legally in Region 4 but drain into Region 8. The Orange County line splits Hydrologic Unit 5 (Los Angeles-San Gabriel River HU) so that Sub-Areas 845.15, 845.61, 845.62, and 845.63 are legally in Region 8 but drain into Region 4. Therefore, a 5-digit number on the map indicates that a Regional Boundary divides a Hydrologic Unit, area, or subarea. In these cases the second digit is the number of the region from which the hydrologic area has been separated by the regional boundary. All other digits are described in the legend.

4. The 1986 updated names and boundaries shown on the map are in accordance with an agreement with DWR and US Geological Survey.

REMARKS(4): Note 1 refers to DWR Bulletin 130 Series, titled "Hydrologic Data". See also DWR Bulletin series 94- and 230-.
Note 2 refers to SWRCB code adaptation of the DWR "Areal Designation" system of basin coding as used in Bulletins 94, 130, and 230 (see Areal Designation system description in DATA DICTIONARY above).

Central Valley Region (5), Sacramento Basin (SB) HBPA

Standard Revisions; additional Notes:

NOTE:

1. The 1986 revised numbers and boundaries shown on this map are in accordance with an interagency agreement between the State Board, the Department of Water Resources, and the U.S. Geological Survey.

Central Valley Region (5), San Joaquin (SJ) HBPA

Standard Revisions; additional Notes:

NOTE:

1. (same as for SB HBPA above)

2. San Joaquin Valley Floor Hydrologic Unit includes Hydrologic Unit numbers 535 and 545.

REMARKS(5/SJ): HU codes 535 and 545 have the same name. HU codes 528, 529, and 530 are skipped in the Central Valley sequence.

Central Valley Region (5), Tulare Lake (TL) HBPA

Standard Revisions; additional Notes:

NOTE:

1. (same as for SB HBPA above)

2. South Valley Floor Hydrologic Unit includes Hydrologic Unit numbers 551, 557, and 558 due to the large number of Hydrologic Areas contained in this unit.

REMARKS(5/TL): HU codes 551, 557 and 558 have the same name. HU codes 546 through 550 inclusive are skipped in the Central Valley sequence.

Lahontan Region (6), North Lahontan (NL) HBPA

Standard Revisions; additional Notes:

NOTE:

1. The 1986 updated names and boundaries shown on this map are in accordance with an agreement with the Department of Water Resources and the U.S. Geological Survey.

Lahontan Region (6), South Lahontan (SL) HBPA

Standard Revisions; additional Notes:

NOTE:

1. The names and areas shown on this map are the same as used by the Department of Water Resources (DWR) in their Bulletin 130 Series except as explained below.

2. The numbering system used on this map is an adaptation of the numbering system used in the 130 Series.

3. The 1986 updated names and boundaries shown on the map are in accordance with an agreement with DWR and the U.S. Geological Survey.

REMARKS(6/SL): Note 1 refers to DWR Bulletin 130 Series, titled "Hydrologic Data". See also DWR Bulletins 94 and 230. Note 2 refers to SWRCB code adaptation of the DWR "Areal Designation" system of basin coding as used in Bulletin 230 and elsewhere. See REMARKS(4).

Colorado River Basin Region (7)

Standard Revisions; additional Notes, REMARKS: same as SL HBPA above.

Santa Ana Region (8)

Standard Revisions; additional Notes, REMARKS: same as Region 4 above.

San Diego Region (9)

Standard Revisions; additional Notes, REMARKS: same as SL HBPA above.

DATA QUALITY ASSESSMENT

All SWRCB hydrologic names and codes were verified for consistency with 1:500,000-scale, SWRCB-published maps as of their August 1986 revision. Regional (RWQCB) and State (SWRCB) Boards have performed subsequent revisions. Expect updates of the database swrcbhc.dbf and this metadata file (see also REVISION HISTORY section above).

Several discrepencies among alternative basin coding systems with respect to the coverage HBASA are described in the DATA DICTIONARY above. Users are cautioned to also examine the boundaries of the following SWRCB basins for consistency with CALWATER delineations (other discrepencies may also exist as CALWATER is under development):

See field HCODE in the polygon attribute table HBASA.PAT:

111.21
526.44
637.31
518.41
508.10
509.63
536.20
537.10
535.90
405.62
845.62
405.63
845.62
630.30
506.10
515.10
535.40

Users should contact their local Regional Water Quality Control Board offices to obtain the most current basin delineations and codes.

Revised: November 29, 1995